

▪ VOLLEYS OF LIGHT AND SHADOW ▪

for chamber ensemble and electronic sound

Commande de l'Ircam-Centre Pompidou

Musique électronique réalisée dans les studios de l'Ircam

Musique électronique : Ben Hackbarth, Gilbert Nouno

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2014

▪ BENJAMIN HACKBARTH ▪

Program notes and recording excerpts:

<http://www.benhackbarth.com/vls>

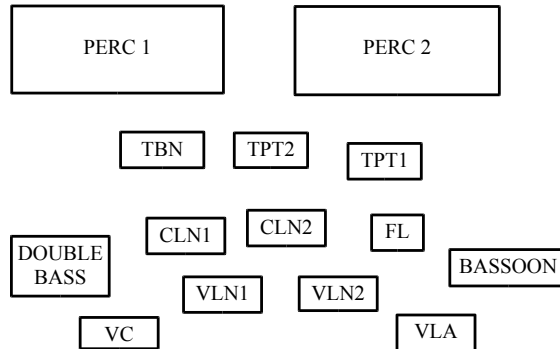
Full recording available at:

<http://www.benhackbarth.com/vls/vls.mp3>

INSTRUMENTATION

Flute/Piccolo
 2 Bb Clarinets
 Contra-Bassoon/Bassoon
 2 Bb Trumpets
 Trombone
 2 Percussion
 2 Violins
 Viola
 Cello
 Bass

STAGE PLACEMENT



PERCUSSION INSTRUMENTS

Percussion 1

Vibraphone

Unpitched

bucket tom4 tom2 snare shekere guiro wb3 wb1 gong anvil slapstick ratchet

Percussion 2

Crotales

Unpitched

bucket tom3 tom1 snare cunga guiro wb4 wb2 cabasa can slapstick ratchet

sound 2 octaves higher than written

bucket: a simple, large plastic bucket mounted on a drum stand and played on its back

tom1, tom2, tom3, tom4: taken from a set of toms, ordered low to high. each head is dampened with a small disc of material, making the sound duller and less resonant. For example, an additional drum head may be laid over each tom's membrane, making its sound more dull and less resonant.

guiros: do not have to match – e.g. may be made of different types of materials.

wb1, wb2, wb3, wb4: woodblocks, ordered low to high

gong: small unpitched gong, lying flat on a table dampened by foam

cabasa: perhaps mounted to the table so that it is easily played by both hands and mallets.

can: a 2-4 liter tin can played on its back on a table dampened by foam

anvil: on a table dampened by foam

slapsticks: do not have to match – e.g. may be different sizes

ratchets: do not have to match – e.g. may be different sizes / timbres

ENSEMBLE TECHNIQUES

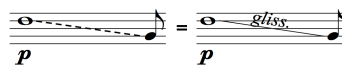
INTERPOLATE RHYTHM - This indication modifies the performance of written rhythms in a given passage such that brief accelerations and decelerations “blur” the changing speed of attacks. To the left is shown a short example. Underneath the symbolic notation are two rows of dots corresponding to individual note attacks. The first line of dots shows the normal performed rhythm. The second row of dots shows the desired result of the “interpolated rhythm” instruction. Such modifications essentially ensure that, rather than abrupt

The example shows a musical notation for a rhythm. The notation is in 4/4 time and consists of a series of eighth notes. Above the notation is the instruction "interp. rhythm". Below the notation are two rows of dots representing note attacks. The first row shows the normal performed rhythm, and the second row shows the desired result of the "interpolated rhythm" instruction. The dots are connected by vertical lines, and the lines are labeled with the numbers 7, 3, and 5, indicating the number of notes in each group.

changes in speed, the speed of successive notes is continually modified to achieve a fluid, continuous result.

DGLISS - Glissandi notated with a dotted line indicate that the rate of pitch change is coupled to the changing amplitude of the note. Thus, louder dynamics result in a faster glissando speed while softer dynamics indicate a slower glissando. As dynamics change, the speed of glissando should change in tandem. Consider the following examples which illustrate this coupling:

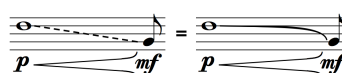
1. A static amplitude yields an even glissando, equivalent to an ordinary glissando.



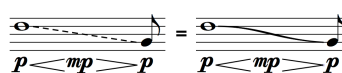
2. However, a change in dynamic affects the slope of the glissando. In this case, the dynamic increase from p to mf create a steeper pitch change towards the end of the note.



3. The slope of the change in dynamic affects the slope of the glissando. Here, the exponential hairpin creates a more dramatic pitch change when compared to 2.



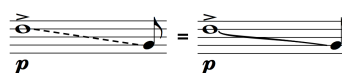
4. The intensity of dynamic change also affects the intensity of the glissando speed. A change from p – mp only creates a slight change in glissando slope...



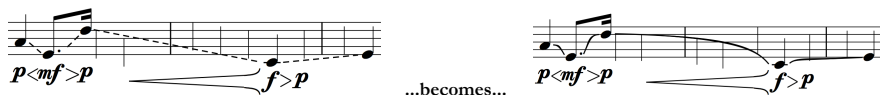
5. while a change from p to mf yields a more dramatic slope in pitch change when compared to 4.



6. Any change in amplitude, however slight, affects glissando speed. shown here, an accent.



Consider a more complete passage utilizing this notation:



WIND TECHNIQUES

– An unpitched noise made by blowing through the instrument while fingering the indicated note. By default, exhaling.

– Exhale.

– End a sustained note abruptly, punctuated with tongue of other similar percussive event.

– Inhale.

FLUTE-SPECIFIC TECHNIQUES

– Tongue Pizzicato. By default, articulated with a 't' syllable, but also performable with 'p' or 'ts' if indicated. Written duration is insignificant.

– Cover embouchure hole completely with lips, exhaling (by default) or inhaling (if indicated) into the instrument.

– Indicates a tremolo articulation method: d.t. = double tongue as fast as possible. flt. = flutter tongue. By default, flutter.

– Key click. Written duration is insignificant.

– Written above notes, these indicate syllabic additions to unpitched tones or articulations.

– Half pitched, half noise.


CLARINET-SPECIFIC TECHNIQUES

– Slap tongue. Written duration is insignificant.








– Ordinary oral cavity.

– Constricted oral cavity.

BASSOON-SPECIFIC TECHNIQUES

-  – Slap tongue when reed is removed. Written duration is insignificant.







STRING TECHNIQUES

-  – Mute strings with left hand resulting in a mostly unpitched sound. The left hand pressure is relatively hard while the bow pressure is relatively light. When this notehead is used, register corresponds to vertical bow placement – higher notes are closer to the bridge, lower notes are over the fingerboard. Left hand placement should also be used to sharpen registral differences. Clef is insignificant.
-  – Indicates vertical bow movement towards the fingerboard (low) and towards the bridge (higher).
-  – Scratch Tone – high pressure and slow bow speed. Use left-hand muting to avoid pitched resonances.
- vertical bow – Accompanying a scratch tone, indicating to moving the location of the bow on the string towards or away from the fingerboard.
-  – Unmetered jeté. Grace notes indicate approximate number of iterations and bounce speed with note durations (eighth, sixteenth, etc.).
-  – Harmonic pressure.
- CL – Col Lengo Battuto, played by bouncing the wood of the bow against the string(s). Almost always with a muted notehead.
- Bat – Scratch tone behind the bridge on the string binding. Use left-hand muting to avoid pitched resonances.
- slow bow – Accompanying a scratch tone signifying a slow rate of motion yielding intermittent and non-continuous impulses.
-  – Forcefully slap the strings on the fingerboard with the left hand.
-  – A snap “bartok” pizzicato.







DOUBLE-BASS TECHNIQUES

Unlike the other string parts, all double bass harmonics are notated by indicating the desired pitch, not the string to play and the node to touch. The bass player should find the string and node which best suit the musical context. **All harmonics notated in treble clef are written at sounding pitch.**





TRUMPET TECHNIQUES








-  – An unpitched noise made by blowing through the instrument while fingering the written pitch. By default, exhaling.
-  – Slap tongue. Written duration is insignificant.
-  – Pedal tone, pitch is unstable.
-  – An unpitched air sound that emanates from the removed 2nd valve slide, not the bell.
-  – Percussive sound made by slapping the palm of the hand against the mouthpiece or leadpipe (removing the mouthpiece if desired).
-  – Stop sustained note with tongue, producing a slight accent and a slight disruption to the timbre.

TROMBONE TECHNIQUES

-  – An unpitched noise made by blowing through the instrument in the position of the written pitch. By default, exhaling.
-  – Slap tongue. Written duration is insignificant.
-  – A un-metered trill produced with the valve.
-  – Pedal tone, pitch is unstable and unfocused.
-  – Percussive sound made by slapping the palm of the hand against the mouthpiece or leadpipe (you may remove the mouthpiece if desired).
- wandering pitch – A wavering, pinched, unfocused, high-pitch that freely wanders between several overtones while keeping the same slide position.
-  – Stop sustained note with tongue, producing a slight accent and a slight disruption to the timbre.

PERCUSSION TECHNIQUES

-  – Staccato performed as a deadstroke.
-  – An arrow across the note stem indicates a scraping motion.
-  – Play with the shaft of the mallet.
-  – Rimshot.

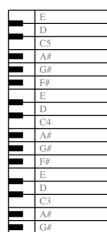
- brass – Indicates to play with the tip of a brass mallet. Or triangle beater, where appropriate.
-  – Slurs are used exclusively to indicate a metered jeté. Most often written to be played with the shaft of the mallet, as shown to the left.
-  – A two-note quasi-jeté, where the second note is deadsticked and abruptly stops the resonance of the first.
-  – A tremolo produced with the stick in contact with the instrument – after the initial attack, the stick should not leave the surface. The tremolo is created by rapidly moving the stick back-and-forth across a small area. Accents and dynamics are created by expanding/contacting the area, changing the size of the motion. In an unmetered tremolo, as fast as possible. If repeated attacks, each note is a single motion.
-  – This clef is used to indicate what part of the shaft of the mallet makes contact with the instrument. Gradual changes across time, indicated with horizontal lines, should result in an audible change in timbre.
-  – Unmetered jeté. Grace notes indicate approximate number of iterations and bounce speed with note durations (eighth, sixteenth, etc.).
-  – A dashed slur indicates a single gesture where the attacking implement (first note) remains depressed and the release (second note) is created from an energetic and noisy gesture scraping the articulative implement off of the instrument.
-  – Make circular motions of the object with the specified implement. The implement should remain in contact with the surface of the playing object over the course of the note's duration. In an unmetered tremolo, as fast as possible. If repeated attacks, each note is a single circular motion.

ELECTRONIC PERFORMANCE

The electronic part is realized with a Max/MSP patch available from IRCAM. The spatialization algorithms in the patch may be configured to reproduce the electronic part for any number of loudspeakers. The minimum channel count is 2.1 – configurations up to 24.2, including the use of elevated channels, have been tested. It is important to note that subwoofer channels are supplied by the patch and should not be summed at the console due to delay-based panning algorithms.

Depending on the size of the hall, slight amplification may be used on select players in order to boost the overall level to meet that of the electronics.

ELECTRONIC NOTATION



Electronic sounds are notated on an 18 line staff where the middle space corresponds to middle C. Contrary to typical Western notation, the interval between any adjacent line-space or space-line is a semitone. Thus, the staff's top line corresponds to F5 (the normative top line of the treble clef) and the bottom to G3 (the normative bottom line of the bass clef).

Events are shown in a “piano-roll” type notation which is synchronized to the acoustic score. Pitched electronic events are notated according to their time-varying fundamental frequency. Unpitched sounds are notated according to a time-varying measure of the distribution spectral energy. Amplitude is shown with both note thickness and darkness.

THANK YOU

Thank you to the following researchers who's insights and ideas have inspired and enabled my work: Norbert Schnell, Joachim Goßmann, Arshia Cont, Diemo Schwarz and Philippe Esling.

Violent, torn-off gestures.

♩ = 108

Piccolo
 Clarinet in Bb
 Bass Clarinet in Bb
 Contrabassoon
 Trumpet in Bb
 Trombone
 Percussion 1
 Percussion 2
 Violin 1
 Violin 2
 Viola
 Cello
 Double Bass
 Piano

RH: audible sfz
 LH: inaudible synchronization

10

Vln 1

Vln 2

Vla

Vc

Db

Clv.



18

Vln 1

Vln 2

Vla

Vc

Db

Clv.

27

SP → ord.

Vln 1

Vln 2

Vla

Vc

Db

Clv.

35

MSP

SP

Vln 1

Vln 2

Vla

Vc

Db

Clv.



52

Vln 1

Vln 2

Vla

Vc

Db

Clv.

A bit softer, but with the same white-hot intensity.

[illegible]

81

Vln 1

Vln 2

Vla

Vc

Db

Clv.

f *mp* *ff* *f* *ffmp* *ffp* *ffp*

f *mp* *ff* *f* *ffmp* *ffp* *ffp*

f *ffmp* *ff* *f* *ffmp* *ffp* *ffp*

f *mf* *ff* *f* *ffmp* *ffp* *ffp*

fp *f p* *fp* *ffp* *fp*

delius *delius* *delius* *delius* *delius* *delius* *delius*

SP *SP* *SP* *SP* *SP* *SP* *SP*

5 *5* *5* *5* *5* *5* *5*

3 *3* *3* *3* *3* *3* *3*

II *nail pizz* *arco*



88

Vln 1

Vln 2

Vla

Vc

Db

Clv.

ffp *ffp* *mf ffmp* *fp < f > pp*

ffp *ffp* *mf* *ffmp* *fp < f > pp*

ffp *ffp* *ffp* *mf* *ffmp* *fp < f > pp*

ffp *ffp* *ffp* *mf* *ffmp* *fp < f > pp*

fp *fp* *fp* *fp* *mf* *p* *f*

delius *delius* *delius* *delius* *delius* *delius* *delius*

3 *3* *3* *3* *3* *3* *3*

5 *5* *5* *5* *5* *5* *5*

gloss

104

Picc.

Vln 1

Vln 2

Vla

Vc

Db

Clv.

Each note change slightly accented until m. 118

semprè SP

p

f

mp

pizz

112

Picc. Solo; Violent and corrosive timbre. Make the difference between soft and loud extreme and unpredictable. Accented attacks drift slightly sharp.

Piccolo

p *ffp* *ffp* *ff > p* *fp* *ffp* *ffp*

Vln 1 *mf* *pp*

Vln 2 *mf*

Vla *mf*

Vc ord. arco II *p* *pp*

Db *mf*

Clv.

123

Picc. *f > p* *ff > p*

Vln 1 *ffp* *ff* *pizz* *5*

Vln 2 *ffp* *f > p* *f* *pizz* *5*

Vla *ffp* *f > p* *f* *f*

Vc *ffp* *f* *pizz* *5*

Db *f* *f* *pizz* *5*

Clv. *f*

SP *3* glissando on II while playing I

nail pizz

132

Picc. *mfpp* *<f>pp* *<fp* *fmp* *sub pp* *p* *<fmp* *f* no vib.

Vln 1 pizz *mp* nail pizz *f* arco SP *fp*

Vln 2 pizz *f* arco *fp*

Vla *fp* *arco* *fp* III pizz *fp* *arco* *fp* *3*

Vc *fp* *arco* *p* *fp* *5*

Db *fp* *arco*

Clv.



142

Picc. *ff* *ffp* *<ff>* *<ff>* *p* *<fp* *<ff>* *p* *<ff>* *sub mp* *5*

Vln 1 *6* *fp* *ffp* *mf* *pizz* *3*

Vln 2 *5* *f* *p* *ffp* *f* *pizz* *3*

Vla *5* *f* *p* *ffp* *mf* *f* *pizz*

Vc *3* *f* *p* *ffp* *f* *pizz* *3*

Db *3* *fp* *ff* *f* *pizz*

Clv. *6*

151

Picc. *ff* *ff*

Vln 1 *f* *ffp* *f* *fp* *gliss*

Vln 2 *f* *ffp* *f* *pp* *gliss*

Vla *f* *ffp* *f* *pp*

Vc *f* *ffp* *f* *pp*

Db *mf* *f* *arco III*

Clv.



158

Picc. *ffp* *ffp* *ffp* *fp*

Vln 1 *ff > p* *ff* *f* *f* *gliss* *gliss* *gliss*

Vln 2 *ff > p* *ff* *f* *f* *gliss* *gliss* *gliss*

Vla *ff > p* *ff* *f* *ff* *gliss* *gliss* *gliss*

Vc *ff > p* *ff* *f* *f* *gliss* *gliss* *gliss*

Db *ffp* *ff* *f* *mf* *f*

Clv.

Light, feathery, fluid tremoli.
Should not produce distinct harmonic pitches - rather, an airy and noisy sound.
The speed of the tremoli get faster when dynamic increases.
Dynamics are prescriptive of effort - result will be softer than written.

Picc.
 Cl 1
 B. Cl.
 Cbsn.
 Tpt 1
 Tpt 2
 Tbn.
 Perc 1
 Perc 2
 Vln 1
 Vln 2
 Vla.
 Vc.
 Db.
 Clv.

[illegible]

214

Stinging, dramatic changes in intensity which fuse together to create a singular harmonic object. Dynamic changes must be very precise and, at fortepianos, instantly soft.

15

The musical score for "The Great Wall" by David Lang is a complex orchestral work. It features a large ensemble of instruments, including Flute (Fl.), Clarinet (Cl.), Bass Clarinet (B. Cl.), Cello (Cbsn.), Trumpet 1 (Tpt 1), Trumpet 2 (Tpt 2), Trombone (Tbn), Percussion (Perc 1, Perc 2), Violin 1 (Vln 1), Violin 2 (Vln 2), Viola (Vla), Violoncello (Vc), Double Bass (Db), and Clavichord (Clv.). The score is written in 4/4 time and includes various musical notations such as dynamics (e.g., *mf*, *pp*, *f*), articulations (e.g., *gliss*, *sub.*), and performance instructions (e.g., "Tin foil is placed loosely on top of the bar to create a metallic, harsh timbre."). The score is divided into measures, with some measures containing multiple staves for different instruments. The overall style is contemporary and experimental, with a focus on texture and timbre.

[illegible]

This page of a musical score is arranged in a standard orchestral format. The instruments are listed on the left side of the page, with their corresponding staves. The score includes various musical notations such as notes, rests, dynamics (mf, p, f, ff), and articulations (accents, slurs). The key signature is one sharp (F#), and the time signature is 3/4. The score is divided into measures by vertical bar lines. The instruments included are Flute (Fl.), Clarinet 1 (Cl. 1), Bass Clarinet (B. Cl.), Cello/Double Bass (Cbsn.), Trumpet 1 (Tpt 1), Trumpet 2 (Tpt 2), Trombone (Tbn.), Percussion 1 (Perc 1), Percussion 2 (Perc 2), Violin 1 (Vln 1), Violin 2 (Vln 2), Viola (Vla.), Violoncello (Vc.), Double Bass (Db.), and Piano/Conductor (Clv.). The score features a variety of musical elements, including melodic lines, harmonic support, and rhythmic patterns. Dynamics range from piano (p) to fortissimo (ff). Articulations include accents and slurs. The key signature is one sharp (F#), and the time signature is 3/4. The score is divided into measures by vertical bar lines.

241

To Piccolo

The musical score is arranged in a system of staves. The instruments and their parts are as follows:

- Fl.**: Flute, measures 241-242 with *ffp* dynamics.
- Cl 1**: Clarinet 1, rests throughout.
- B. Cl.**: Bass Clarinet, measures 241-245 with *ffp*, *f*, and *ffp* dynamics, including triplets and quintuplets.
- Cbsn**: Contrabass, measures 241-245 with *ffp*, *f*, and *ffp* dynamics, including triplets and quintuplets.
- Tpt 1**: Trumpet 1, measures 241-242 with *mf* dynamics, including a triplet and a quintuplet.
- Tpt 2**: Trumpet 2, measures 241-242 with *mf* dynamics, including a triplet and a quintuplet.
- Tbn**: Trombone, measures 241-245 with *mf*, *fp*, and *fp* dynamics, including triplets and a quintuplet.
- Perc 1**: Percussion 1, measures 241-242 with *fp* dynamics.
- Perc 2**: Percussion 2, rests throughout.
- Vln 1**: Violin 1, rests throughout.
- Vln 2**: Violin 2, rests throughout.
- Vla**: Viola, rests throughout.
- Vc**: Violoncello, measures 241-245 with *ff*, *sfz*, and *ffp* dynamics, including triplets and quintuplets.
- Db**: Double Bass, measures 241-245 with *ff*, *sfz*, and *ffp* dynamics, including triplets and quintuplets.
- Clv.**: Clavichord, measures 241-245 with *sfz* dynamics, including a triplet.

Fl.

Cl 1

B. Cl.

Cbsn

Tpt 1

Tpt 2

Tbn

Perc 1

Perc 2

Vln 1

Vln 2

Vla

Vc

Db

Clv.

ord. octave
arco
ST

ord. octave
ST

SP

ST

pizz

arco

SP

ff

f

mf

f

mp

fp

fmp

sfz

258

E Explosive dynamics

Piccolo

Fl.

Cl 1

B. Cl.

Cbsn

Tpt 1

Tpt 2

Tbn

Perc 1

Perc 2

Vln 1

Vln 2

Vla

Vc

Db

Civ.

sfz f mf > p

ffp

ffp

ffp

mfmp

mp

fp

fp

fp

mp

fp

f

mfmp

mp

ffp

ffp

pp

mf

p

ffp

ff

ffp

Decreases in dynamics achieved with hand-dampening.

sempre with bow until m. 322

sempre MSP, practice mute. Wild. A noisy, menacing sound. Although glisses are notated continuously, you may break to change strings where desired.

gliss

arco

RH: controls speed of continuous pizzicato streams
LH: triggers audible attacks of pizzicati

[illegible]

278

F

Picc

Cl 1

B. Cl.

Cbsn

Tpt 1

Tpt 2

Tbn

Perc 1

Perc 2

Vln 1

Vln 2

Vla

Vc

Db

Civ.

harsh multiphonic of pitch's fundamental

OPEN (if possible)

OPEN

OPEN

arco

SP

pizz

mallets

286

Picc *mf* *mf* *mf* *mp* *fp*

Cl 1 *mf* *mf* *fp*

B. Cl. *fp*

Cbsn *mf*

Tpt 1 *p* *mf* *mp* *fp*

Tpt 2 *p* *fp*

Tbn *fp*

Perc 1 (bow) *fp*

Perc 2 *mf*

Vln 1 *arco* *sfz* *sfz* *mf* *fp*

Vln 2 *arco* *sfz* *sfz* *mf* *fp*

Vla *p* *gliss* *f*

Vc *f* *sfz* *sfz* *fp*

Db *fp*

Clv

295

Picc *fp*

Cl 1 *fp* *mf* *f*

B. Cl. *fp* *fp* *fp* *mf* *mf*

Cbsn *fp* *fp* *mf* *mf*

Tpt 1 *f*

Tpt 2 CUP mute *f* *f* *f* *mf* *mf*

Tbn CUP mute *f* *f* *f* *mf* *mf*

Perc 1 *f*

Perc 2 *fp*

Vln 1 *fp*

Vln 2 *fp*

Vla *p* *f* *p* *f* *f* *ord.* *fp* *fp*

Vc *f* *fp*

Db *fp*

Clv

Picc

Cl 1

B. Cl.

Cbsn

Tpt 1

Tpt 2

Tbn

Perc 1

Perc 2

Vln 1

Vln 2

Vla

Vc

Db

Clv.

307 $\text{♩} = 72$ slow flutter

Picc *mp*

Cl 1

B. Cl. *mp* To Cln. Clarinet in Bb *mp*

Cbsn

Tpt 1 *mf* *mp* *p*

Tpt 2 HARMON mute, stem in

Tbn

Perc 1 *f* *mf* *p* bow *mp*

Perc 2 *fp* *fp*

Vln 1 II *mf* tutti pizz *f* *mf*

Vln 2 *f* *p* *mf* *p* tutti pizz *f* *mf*

Vla *mf* *p* *mf* *p* tutti pizz *mf*

Vc 1 *mf* *p* *mf* tutti pizz *f* *mf*

Db

Clv. $\text{♩} = 72$ Each note is a separate pizzicato chord

314

Picc *mf* *sfz* *mp* *mf* *pp* *rit.*

Cl 1 *mf* *mp* *pp*

Cl 2 *p* *mp* *p*

Cbsn

Tpt 1 *p* *sub* *mp* *sub* *pp* *half valve* *mp* *sub* *p* *mp*

Tpt 2 *p* *mp*

Tbn

Perc 1 *pedal up* *mallets* *tr* *mf* *p*

Perc 2 *p*

Vln 1 *arco* *jeté* *I* *mf* *pizz* *IV* *mf* *f* *f*

Vln 2 *arco* *I* *mf* *fmp* *fast bow, multiple strokes* *mf*

Vla *mf* *f*

Vc *mf* *f*

Db

Clv. *rit.*

The page shows a musical score for a symphony orchestra. The instruments listed on the left are Picc, Cl 1, Cl 2, Cbsn, Tpt 1, Tpt 2, Tbn, Perc 1, Perc 2, Vln 1, Vln 2, Vla, Vc, Db, and Clv. The score is written in 4/4 time and includes various musical notations such as notes, rests, dynamics (p, pp, mf, mp, ff), articulations (pizz, arco, gliss), and performance instructions (Bowed, touch harmonic node). A tempo change from 40 to 72 is indicated at the bottom.

Tempo: 40, 72

Performance Instructions:

- Bowed, touch harmonic node on the side of bar, in center.
- wblock
- toms on rim
- inter. rhythm
- snare on rim
- arco
- pizz
- gliss

Dynamics: p, pp, mf, mp, ff

Articulations: pizz, arco, gliss

Other Notations: 3, 5, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100

326

Picc
Measures 326-330: *mp*, *p*, *5*, *5*

Cl 1
Measures 326-330: *p*

Cl 2
Measures 326-330: *p*

Cbsn
Measures 326-330: *p*

Tpt 1
Measures 326-330: *p*

Tpt 2
Measures 326-330: *p*

Tbn
Measures 326-330: *p*

Perc 1
Measures 326-330: *mp*, *mf*, *f*, *mp*, *mf*, *snare on rim*, *tom on rim*, *interp. rhythm*

Perc 2
Measures 326-330: *mf*, *mp*, *mf*, *mp*, *f*, *mp*, *mf*, *mp*, *snare on rim*, *interp. rhythm*

Vln 1
Measures 326-330: *pp*, *5*

Vln 2
Measures 326-330: *p*, *-32 cents*

Vla
Measures 326-330: *p*

Vc
Measures 326-330: *p*

Db
Measures 326-330: *p*

Clv
Measures 326-330: *p*, *3*

333

Picc

Cl 1

Cl 2

Cbsn

Tpt 1

Tpt 2

Tbn

Perc 1

Perc 2

Vln 1

Vln 2

Vla

Vc

Db

Clv.

STRAIGHT mute

mp

p

STRAIGHT mute

mp

mf

interp. rhythm

mp

wblocks
brass, delicate

interp. rhythm

mp

cunga
on rim

mf

mp

f

arco

p

arco
C.I. Tratto

mp

arco

p

338

Picc *minimum volume*

Cl 1 *mp*

Cl 2 *mp*

Cbsn *p*

Tpt 1

Tpt 2

Tbn

mf

mallet head played directly on beads

shekere *interp. rhythm*

mp

mf

tom on rim *interp. rhythm*

mf

cabasa

mallet head played directly on beads

qui-ro

short articulate

scrapes with shaft

mp

mf

tom on rim *interp. rhythm*

mf

Vln 1

MSP

p

pp

mp p

Vln 2

p

Vla

II MSP

mp

Vc

mp

Db

mp

Clv.

[illegible]

[illegible]

356

Picc *mf*
mf

Cl 1 *mp*

Cl 2 *mf*

Cbsn *mp*

Tpt 1 *mf* *pp*
OPEN

Tpt 2 half valve *mf* *pp*

Tbn

Perc 1 tom on rim *mf* *mp* *interp. rhythm* bucket on rim, delicate *p* *interp. rhythm*

Perc 2 *mf* *mp* *interp. rhythm* *mp* *mf* *mp* *f*

Vln 1 *mp* *p* *arco* *jeté*

Vln 2 *mp* *mf*

Vla *mp*

Vc

Db

Clv. *3*

361

Picc *mp*

Cl 1

Cl 2 *p*

Cbsn *p*

Tpt 1

Tpt 2

Gliss continuously over this entire passage.
Note changes are smooth and uneventful -
do not attack pitches with tongue.

OPEN *mp* *mf* *mp*

Perc 1 *interp. rhythm* *mp* *mf* *mp*

snare on rim

shekere play directly on beads *interp. rhythm*

Perc 1 *mp* *mf* *mp*

cunga on rim *interp. rhythm* *mp* *mf*

woodblock brass *interp. rhythm* *mp* *mf*

cunga very near rim with triangle beater *interp. rhythm* *mp* *mf*

Vln 1 *p* *mp* *p* *jeté*

Vln 2

Vla *p* *mp* *p* *jeté*

Vc

Db *p* *mp* *p* *jeté*

Clv.

366

Picc

Cl 1

Cl 2

Cbsn

Tpt 1

Tpt 2

Tbn

brass—
wblock

interp.rhythm
gong

toms on rim

Vln 1

Vln 2

Vla

Vc

Db

Clv.

369

Picc
mf p p mf p mp

Cl 1
mf mp

Cl 2
p sub mp p

Cbsn
p

Tpt 1
p mp p

Tpt 2

Tbn
p mp

Perc 1
interp. rhythm bucket on rim guiro short articulate scrapes with shaft
mf mp f sim

Perc 2
interp. rhythm cabasa mallet head played directly on beads
p sub mf mp mf III ST

Vln 1
mp IV ST

Vln 2
p mp

Vla
mp

Vc

Db
p

Clv

[illegible]

378

Picc *f* *mp* *mf* *p*

Cl 1 *mf* *p* To B. Cl.

Cl 2 *mf* *p* To Bsn.

Cbsn *mp* *fp* *ffp*

Tpt 1 remove 2nd valve slide *f* for A use 3, not 1+2

Tpt 2 remove 2nd valve slide *f* for A use 3, not 1+2

Tbn *f* *mp* *mf* trill with lip

tom's *interp. rhythm* *fp* *f* bucket *interp. rhythm* *f*

bucket *interp. rhythm* *mp* *f* *f*

Vln 1 *mp* *f* *p* *fp*

Vln 2 *mp* *ff* *fp* *mp* *f*

Vla *f* *p* *mp*

Vc *mp* *f* *p* *mp* *jeté arco* *jeté* *mf*

Db *f* *p* *f*

Clv.

40

383

vib. *expr*

J Drilling through layers of earth.

To Fl.

Picc

Cl 1

Cl 2

Cbsn

Bass Clarinet in Bb

Bassoon

Tpt 1

Tpt 2

Tbn

Crotales bowed

Vln 1

Vln 2

Vla

Vc

arco

Db

Clv.

(following cello glissando pitch)

mp

f

mf

p

ff

fff

sfz

tr

3

5

7

9

11

13

15

17

19

21

23

25

27

29

31

33

35

37

39

41

43

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557

559

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563

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569

571

573

575

577

579

581

583

585

587

589

591

389

Flute
d.t.

Picc *fmp* *mf* *mp*

Cl 1 *fmp* *mp*

B. Cl. *mf*

Bsn. remove reed.

Tpt 1 *mf* *mp*

Tpt 2

Tbn CUP mute *gliss* *pp*

guiro slow, long strokes *mp* snare stroke and scratch snares with fingernails *f*

tom *f* *mp* *f* snare brushes on meml frantically fast and

Crot. *f* *mp* *f*

Vln 1 *pp* *p* at bridge *f*

Vln 2 *mf* at bridge *f*

Vla *mf* at bridge *f*

Vc *gliss* *pp* *mp* *SP* *gliss* *mp* *pp* *mf* *p* light bow long strokes *gliss*

Db *p*

Clv.

Fl.

Cl 1

B. Cl.

Bsn.

Tpt 1

Tpt 2

Tbn

shekere
rapidly tap different beads
to create a sparse tremolo

giuro
quick nervous movements
over a small area

gunga
near rim with butt of
stick, fast pulsing

wblock
fast chattering roll

wblock
fast chattering roll

Vln 1

Vln 2

Vla

Vc

Db

Clv.

[illegible]

[illegible]

424

Fl. *gliss* *mp* *fp fp fp fp sim.* *fp fp fp fp sim.*

Cl 1

B. Cl. *fp fp fp fp sim.* *mp*

Bsn. *interp. rhythm* *fp fp fp fp sim.* *mp*

Tpt 1 *sfz* indicates an intense burst of air *sfz* *sfz* *sfz* *sfz* *sfz* *sfz*

Tpt 2 *interp. rhythm* *mf* *mf* *sfz* *sfz* *sfz* *sfz* *gliss*

Tbn *pp*

wblock *fp* *f* *mp* *scrapers against bucket bottom*

cunga *on membrane using scraper in smooth circles* *f* *ff* *cabasa on edge* *interp. rhythm* *mf*

Vln 1 *at bridge* *f*

Vln 2 *interp. rhythm* *f*

Vla *interp. rhythm* *f* *arco* *p* *gliss*

Vc *dgloss* *p* *mf non-dim* *mf* *mp* *SP* *gliss* *mf*

Db *interp. rhythm* *at bridge* *f* *f*

Clv.

[illegible]

[illegible]

451

Fl. *f* *fp* *f* *mf* *f* *interp. rhythm* *t p t p t p t*

Cl 1 *f* *fp* *f*

B. Cl. *fp* *f* *fp* *f* *mf* *gliss* *fp*

Bsn. *f* *fp* *f* *interp. rhythm* *f* *ff*

Tpt 1 *f* *mf* *interp. rhythm* *f*

Tpt 2 *f* *mf*

Tbn. *f* *f* *f* *f* *f* *gliss* *mp*

ff *f* *ff* *mf* *mp* *interp. rhythm* *toms* *6*

f *bucket* *cunga* *6* *interp. rhythm* *bucket* *ff*

Vln 1 *fmp* *pp* *f* *mp* *interp. rhythm* *Cl Bat* *6*

Vln 2 *fmp* *f* *pp* *fmp* *gliss*

Vla *gliss* *fmp* *f* *pp* *fmp* *Cl Bat* *interp. rhythm*

Vc *fmp* *f* *mf* *mp*

Db *f* *ff* *mp* *f* *mf*

Clv.

This page of a musical score is for a symphony orchestra. It contains staves for the following instruments:

- Fl. (Flute)
- Cl 1 (Clarinet 1)
- B. Cl. (Bass Clarinet)
- Bsn. (Bassoon)
- Tpt 1 (Trumpet 1)
- Tpt 2 (Trumpet 2)
- Tbn. (Trombone)
- Perc 1 (Percussion 1)
- Perc 2 (Percussion 2)
- Vln 1 (Violin 1)
- Vln 2 (Violin 2)
- Vla. (Viola)
- Vc. (Violoncello)
- Db. (Double Bass)
- Clv. (Piano)

The score includes various musical notations and performance instructions:

- Interpretive Rhythm (interp. rhythm):** Indicated by dashed lines above the staves for Fl. 1, Cl 1, B. Cl., Bsn., Tpt 1, Tpt 2, Tbn., Perc 1, Perc 2, Vln 1, Vln 2, Vla., Vc., Db., and Clv.
- Dynamics:** *mp* (mezzo-piano), *f* (forte), *mf* (mezzo-forte), *ff* (fortissimo), *p* (piano), and *sim.* (sforzando).
- Performance Instructions:** *cresc. poco a poco* (crescendo poco a poco) and *fast two-note jets*.
- Other Notations:** *gliss.* (glissando) and *mf > mp* (mezzo-forte to mezzo-piano).

[illegible]

461 $\bullet = 112$

[illegible]

468

Fl. *f* *ff* *ff* *fp* *ff*

Cl 1 *ff* *ff* *ff* *f* *fff* *ffp* *ffp* *ff*

B. Cl. *ff* *ff* *ff* *f* *f* *ff*

Bsn. *f* *pp* *ff*

Tpt 1 *ff* *ff* *ff* *f* *fff* *ffp* *ffp* *ff*

Tpt 2 *ff* *ff* *ff* *f* *ff*

Tbn. *ff* *ff*

snare gong brass *f* *ff* *ff*

snare brushes *ff*

cabasa on edge *f*

cabasa with hand back and forth *ff* *f*

bucket *f*

can *f*

Vln 1 *ff* *ff* *ff* *ff*

Vln 2 *ff* *ff* *ff* *ff* *ff* *ff* *ff* *ff*

Vla. *ff* *f* *ff* *f*

Vc. *ff* *f* *mf*

Db. *f* *ff* *f* *fff* *f* *ffp* *ff*

Clv. *f* *f* *f* *f* *f* *f* *f* *f*

476

Fl.

C11

B. Cl.

Bsn.

Tpt 1

Tpt 2

Tbn

snare

shekere

shekere

snare

cunga

shaft flat against membrane

tom

wblock

can brass

Vln 1

Vln 2

Vla

Vc

Db

Clv.

Fl. *ff* *ff* *ff* *ffp* *ffp* *f*

Cl 1 *ff* *ff* *ff* *ffp* *ffp* *ffp* *ffp* *ff* *ff*

B. Cl. *ffp* *ff* *ff* *ffp* *ffp* *ff* *ff* *ff* *ffp*

Bsn. *ffp* *ff* *ff* *ffp* *ffp* *ff* *ff* *ff* *ffp*

Tpt 1 *ff* *ff* *ffp* *ffp* *ff* *ff* *f*

Tpt 2 *ff* *ff* *ffp* *ffp* *ff* *ff* *f*

Tbn. *ff* *ff* *ff* *ffp* *ffp* *f* *f*

wblock *ff* *ff* *ffp* *ff* *ffp* *ff*

gong, brass *ffp* *ff* *ffp* *ff*

tom *ff* *f*

cunga stick butt on membrane *ff*

cabasa on edge *ff*

snare *f* bucket *f*

Vln 1 *ffp* *ff* *ff* *ffp* *ffp* *ffp* *ffp* *ffp* *ffp* *ffp*

Vln 2 *ffp* *ff* *ff* *ffp* *ffp* *ffp* *ffp* *ffp* *ffp* *ffp*

Vla. *ffp* *ff* *ff* *ffp* *ffp* *ff*

Vc. *ffp* *ff* *ff* *ffp* *ffp* *ff*

Db. *ffp* *ff* *ff* *ffp* *ffp* *ff*

Clv.

488

Fl.

Cl 1

B. Cl.

Bsn.

Tpt 1

Tpt 2

Tbn

guiro

bucket brushes

snare brushes

shekere
fast tremolo between

Vln 1

Vln 2

Vla

Vc

Db

Clv.

[illegible]

[illegible]

Fl.

Cl 1

B. Cl.

Bsn.

Tpt 1

Tpt 2

Tbn.

Perc 1

Vln 1

Vln 2

Vla

Vc

Db

Clv.

bridge fingerboard

bridge fingerboard

bridge fingerboard

arco

bridge fingerboard

bridge fingerboard

bridge fingerboard

fp *mp* *ff* *p* *f*

fp *mp* *ff* *p* *f*

fp *mp* *ff* *p* *f*

fp *mp* *ff* *p* *f* *f*

517

Fl. *p*

Cl 1

B. Cl.

Bsn.

Tpt 1 with mouthpiece
mf

Tpt 2 *mf*

Tbn

gong
brass
mp
bucket

cunga
on rim
mp

Vln 1 *f* *mf* *sempre* at bridge

Vln 2 *f* *mf* *sempre* at bridge

Vla

Vc *sempre* at bridge

Db *fp* *mf* *sempre* at bridge

Clv.

P

Fl.

Cl. 1

B. Cl.

Bsn.

Tpt 1

Tpt 2

Tbn

Slapstick

Canbrass

Vln 1

Vln 2

Vla

Vc

Db

Clv.

with Reed

with mouthpiece

with mouthpiece OPEN

slapstick

canbrass

mp

bucket

p

f

mf

fmp

mp

f

Fl.

Cl 1

Clarinet in B \flat
sempre ghosted

Cl.

ppp

Bsn.

Tpt 1

Tpt 2

Tbn

p *mp*

slapstick

mf

Vln 1

sempre at bridge

mf

Vln 2

sempre at bridge

mf

Vla

MSP

p

mf

fp *f*

Vc

sempre at bridge

mf

f

Db

sempre at bridge

mf

f

Clv.

[illegible]

[illegible]

This page of the musical score contains the following parts and their corresponding staves:

- Fl.** (Flute): Staff 1
- Cl.1** (Clarinet 1): Staff 2
- Cl.** (Clarinet): Staff 3
- Bsn.** (Bassoon): Staff 4
- Tpt 1** (Trumpet 1): Staff 5
- Tpt 2** (Trumpet 2): Staff 6
- Tbn** (Trombone): Staff 7
- H** (Horn): Staves 8 and 9
- Vln 1** (Violin 1): Staff 10
- Vln 2** (Violin 2): Staff 11
- Vla** (Viola): Staff 12
- Vc** (Violoncello): Staff 13
- Db** (Double Bass): Staff 14
- Clv.** (Piano): Staves 15 and 16

The score includes various musical notations such as notes, rests, dynamics (mf, f, mp), and articulations (pizz, arco). The key signature is one flat (B-flat), and the time signature is 3/4. The page is numbered 12 in the bottom right corner.

569

Fl.

Cl. 1

Cl.

Bsn.

Tpt 1

Tpt 2

Tbn.

slapstick

Vln 1

Vln 2

Vla

Vc

Db

Clv.

576

Fl.

Cl 1

Cl.

Bsn.

Tpt 1

Tpt 2

Tbn

slapstick

Vln 1

Vln 2

Vla

Vc

Db

Clv.

ppp

ppp

mp

pp

wandering pitch

p

mp

p

pp

MSP

Fl.

Cl. 1

Cl.

Bsn.

Tpt 1

Tpt 2

Tbn.

H.

H.

Vln 1

Vln 2

Vla.

Vc.

Db.

Clv.

MSP

tr

3

p > pp

mp > pp

mp > pp

arco

MSP

tr

gliss

mp

584

Fl.

double tongue

p

Cl. 1

pp 5 6 5 6 *p*

Cl. 2

pp 6 5 6 5 *p*

Bsn.

Tpt. 1

f *fmp* *f*

Tpt. 2

f *fmp* *f*

Tbn.

snare

pp

slapstick

p

Vln. 1

tr

Vln. 2

tr

Vla.

Vc.

ppp *gliss* *gliss* *pp* (as high as possible, VERY soft)

Db.

Clv.